

Title (en)  
METAL 3D PRINTING WITH LOCAL PRE-HEATING

Title (de)  
METALL-3D-DRUCK MIT LOKALER VORHEIZUNG

Title (fr)  
IMPRESSION 3D MÉTALLIQUE À PRÉCHAUFFAGE LOCAL

Publication  
**EP 3533537 A1 20190904 (EN)**

Application  
**EP 18159334 A 20180228**

Priority  
EP 18159334 A 20180228

Abstract (en)  
A device for additive manufacturing is presented, including means for extruding material in flowable state, for depositing an extruded product on an underlying body, and at least one plasma source for providing at least one plasma jet to a region of the underlying body. The plasma provides a pre-heated region in said body. The device is arranged so the at least one plasma source provides the plasma jet only to the region of the underlying body and the means for extruding material is adapted for depositing an extruded product on the pre-heated region of the underlying body, for enhancing fusion between the underlying body and the extruded product.

IPC 8 full level  
**B22F 3/00** (2006.01); **B23K 10/02** (2006.01); **B29C 64/118** (2017.01); **B29C 64/188** (2017.01); **B33Y 10/00** (2015.01); **B33Y 30/00** (2015.01); **B33Y 40/00** (2015.01)

CPC (source: EP US)  
**B22F 10/362** (2021.01 - EP US); **B22F 12/10** (2021.01 - EP US); **B22F 12/90** (2021.01 - EP US); **B23K 10/027** (2013.01 - EP US); **B33Y 10/00** (2014.12 - EP); **B33Y 30/00** (2014.12 - EP); **B22F 10/22** (2021.01 - EP US); **B22F 12/53** (2021.01 - EP US); **B22F 2999/00** (2013.01 - EP); **Y02P 10/25** (2015.11 - EP)

Citation (search report)  
• [X] US 2016271874 A1 20160922 - TSAI TSUNG-CHAN [US], et al  
• [A] GB 2489493 A 20121003 - NORSK TITANIUM COMPONENTS AS [NO]  
• [A] US 2015314528 A1 20151105 - GORDON MARK [US]  
• [A] US 2017072633 A1 20170316 - HSU KENG [US]

Cited by  
CN111300827A; CN113319452A; CN110977102A; CN114101711A

Designated contracting state (EPC)  
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)  
BA ME

DOCDB simple family (publication)  
**EP 3533537 A1 20190904**; EP 3676035 A1 20200708; EP 3676035 B1 20201125; ES 2841915 T3 20210712; PL 3676035 T3 20210628; WO 2019166523 A1 20190906

DOCDB simple family (application)  
**EP 18159334 A 20180228**; EP 19706711 A 20190227; EP 2019054919 W 20190227; ES 19706711 T 20190227; PL 19706711 T 20190227